



CALIFORNIA STATE SCIENCE FAIR 2010 PROJECT SUMMARY

Name(s) Lucas Alfonso; Thomas Wilson	Project Number J0102
Project Title Does Creating a Liquid Vortex Affect Drain Time? Coriolis Effect: Fact or Fiction?	
Objectives/Goals Our goal was to see if creating a liquid vortex would affect the time it takes for water to drain from a one-liter bottle. We also wanted to find out if the Coriolis Effect was true for small bodies of water.	Abstract <p>Step 1: Gather all the materials for this test (2 1 liter bottles, 1 tornado tube, 1 sharpie, video camera, tripod, water, Styrofoam ring.</p> <p>Step 2: Fill a one liter bottle about two inches from the top with water.</p> <p>Step 3: Mark the top of the water with a Sharpie pen on the bottle.</p> <p>Step 4: Connect a one liter bottle with a tornado tube to the bottle filled with water.</p> <p>Step 5: Start the video camera.</p> <p>Step 6: Flip the two bottles over and the water should not fall to the bottom bottle, and there should be no leaks.</p> <p>Step 7: Then, spin the bottle as follows within the confines of the ring: Test #1: Counterclockwise, 4 spins. Test #2: Clockwise, 4 spins Test #3: Counterclockwise, 8 spins Test #4: Clockwise, 8 spins (This part requires two people, one to hold the bottle, and one to hold the ring.)</p> <p>Step 8: Stop the video camera after the upper bottle has completely drained.</p> <p>Step 9: Keep track of how many runs you do.</p> <p>Step 10: Put each run on a computer and record each time.</p> <p>Step 11: Repeat these steps 1 # 10 for Tests 2, 3 and 4.</p>
Results We hypothesized that the bottle that we spin counterclockwise with more spins would drain the fastest. Our hypothesis was incorrect with regard to the greater the number of spins the faster the drainage. Our hypothesis that the direction of the spin would affect the speed of drainage was also incorrect. We found no correlation between the direction of the spin and drainage time. The fastest time was the sixth test. In this test that we spun the bottle counterclockwise four times without a tornado tube.	
Conclusions/Discussion Based on our testing, creating a vortex in water decreased the drain time from a one-liter bottle. We found no correlation between the drainage speed and the direction of the vortex (clockwise or counterclockwise). This would mean the Coriolis Effect is not true for small bodies of water such as used in our experiment	
Summary Statement Does a liquid vortex decrease the time for water to drain, and does the direction of the vortex have an effect?	
Help Received Mother helped type and proofread report.	